

Abstract

An interface material comprising a resin mixture and at least one solder material is herein described. The resin material may comprise any suitable resin material, but it is preferred that the resin material be silicone-based comprising one or more compounds such as vinyl silicone, vinyl Q resin, hydride functional siloxane and platinum-vinylsiloxane. The solder material may comprise any suitable solder material, such as indium, silver, copper, aluminum and alloys thereof, silver coated copper, and silver coated aluminum, but it is preferred that the solder material comprise indium or indium-based compounds and/or alloys. The interface material, or polymer solder, has the capability of enhancing heat dissipation in high power semiconductor devices and maintains stable thermal performance. The interface material may be formulated by mixing the components together to produce a paste which may be applied by dispensing methods to any particular surface and cured at room temperature or elevated temperature. It can be also formulated as a highly compliant, cured, tacky elastomeric film or sheet for other interface applications where it can be preapplied, for example on heat sinks, or in any other interface situations.